

# CS 15-212

## Principles of Programming

Spring 2008



جامعة كارنيجي ميلون في قطر  
Carnegie Mellon  
QATAR CAMPUS  
Eco University  
Qatar Foundation

## Dates and Times

- Lectures
  - ❖ Mo, We 11:30 - 12:50 (C008)
- Recitations
  - ❖ Tu 10:30 - 11:20 (A028)
    - Every week
  - ❖ Su 10:20 - 11:20 (A041)
    - Provisional


## Instructors




- Iliano Cervesato
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- Thierry Sans
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## What this course is all about

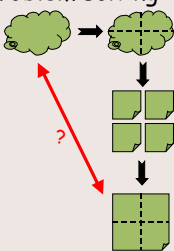
- Provide you with advanced
  - ❖ skills
  - ❖ concepts
  - ❖ techniques
 in Computer Science and programming
- Make you better problem solvers



## Skills

Logical attitude toward problem solving


- Decompose a problem into parts
- Compose their solutions into a complete program
- Reason about programs to ensure correctness



## Concepts

- ❖ Induction and recursion
- ❖ Program correctness
- ❖ Symbolic computation
- ❖ Structuring large programs
- ❖ Parsing and grammars
- ❖ Computability, ...

You will encounter them over and over



## Techniques

- ❖ Recursive functions
- ❖ Higher-order functions
- ❖ Data abstraction
- ❖ Polymorphisms
- ❖ Exceptions
- ❖ Modularity, ...



All high-level programming techniques that will allow you to think differently about programming problems

## The language ML

- Not a commercial programming language
  - ❖ Few jobs as ML programmers
- A laboratory for programming languages
  - ❖ Forefront of research in new programming languages
  - ❖ Some aspects made it into Java
  - ❖ More will appear in future languages
- Standard ML of New Jersey (SML/NJ)

## Course Web Page

<http://qatar.cmu.edu/cs/15212>

- Logistics
- Course description
  - ❖ Prerequisites
  - ❖ Software
  - ❖ Readings
  - ❖ Grading
- Schedule of classes
- Announcements [BB]
- Discussion [BB]
- Assignments [BB]
- Dropbox [BB]

This is your syllabus!

## Readings

- Wiki
  - ❖ Introduction to Programming Using SML



That's it!

- ❖ Skipping class is not a good idea

## Further References

- By Prof. Robert Harper
  - one of SML's creators
  - inventor of CS 15-212
  - ❖ On-line notes
  - ❖ Draft of forthcoming book
- SML Basis Manual Pages
- Tutorial on using the SML/NJ system



## Software



Standard ML of New Jersey, v. 110.59


- Installed on [unix.qatar.cmu.edu](http://unix.qatar.cmu.edu)
- ❖ Linux environment
  - ... you will learn ...
- ❖ All assignments will be tested there
- ❖ Field trip to the lab this tomorrow!
- You can install it on your laptops
  - ❖ Runs also under Windows
  - ❖ But, test your solutions on [unix.qatar.cmu.edu](http://unix.qatar.cmu.edu) before submitting

## *Getting help with ML*

1. Read the tutorial on using the SML/NJ system
2. Consult the wiki
3. Consult the SML Basis Manual Pages
4. Come see us

## *Grades*

- Participation (10%)
  - ❖ Class participation and preparedness
  - ❖ Wiki editing
- 6 homework assignments (55%)
  - ❖  $1 \times 5\% + 5 \times 10\%$
- Midterm in class (15%)
- Final in class (20%)



- Bonus points (up to 10%)
  - ❖ for particularly elegant solutions
    - Read the notes on style ... before each assignment
- Negative points (up to 100%)
  - ❖ if caught cheating

## *Homework assignments*


- Written and programming parts
- Handed out on alternate Sundays
- Due on Saturday 13 days later at **11:59pm** Doha time
  - ❖ 3 late days
  - ❖ Then, late homeworks accepted until the beginning of next class, but with a 25% penalty
- Graded by following Wednesday
- Evaluated on the basis of
  - ❖ Correctness
  - ❖ Specification
  - ❖ Elegance
- **No joint assignments**

## *The 2-week Cycle*

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						Hw n due
Hw n+1 out			Hw n graded			
						Hw n+1 due

- Don't wait till the last day!!!


## *No cheating!*



Students will discuss solutions of homework one-on-one with instructors

- ❖ If you can't explain what you submitted, you get zero points
- ❖ So ...
  - copying from classmate
  - googling solution (?)
  - paying somebody to do homework won't help

## *Class behavior*



- Class starts at 10:30, Q-Tel time
  - ❖ Late students stay out
- Turn cell phones off
- Turn laptops off
- No drinking or eating
- No going in and out
- Raise your hand if you have a question

